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EXAMINER

CHANG, VICTOR S

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/549,618 | <b>Applicant(s)</b><br>SASAGAWA ET AL. |  |
|                              | <b>Examiner</b><br>VICTOR S. CHANG   | <b>Art Unit</b><br>1794                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5, 9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Introduction***

1. Applicants' amendments and remarks filed on 1/23/2009 have been entered. New claim 16 has been entered. Claims 1-4, 6-8 and 11-16 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In response to the amendments, the grounds of rejection have been updated as set forth below. Rejections not maintained are withdrawn.

### ***Rejections Based on Prior Art***

4. Claims 1-4, 6 and 13-16 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Karande et al. [WO 02/068529 A2], and evidenced by Hawkins et al. [US 3935176].

Karande's invention relates to an article prepared from a blend comprising 0 to 50 wt% of hydrogenated random styrene butadiene copolymer (S block) [pp. 3]. Foamed articles are used for various cushions and footwear including shoe soles, etc. [pp. 11].

For claims 1, 6 and 14, Karande is silent about 1) the composition limitations (i.e., weight ratio between the styrene and butadiene monomers, the vinyl bond content with respect to diene monomer) of the hydrogenated component (A) (hydrogenated S block), and 2) the physical limitations (peak loss tangent (mechanical property) and the specific gravity (density)) of the foam. However, regarding 1), Hawkins' invention relates a hydrogenated random copolymer of

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a conjugated diene and vinyl aromatic compound [abstract]. Variations in the vinyl content of the conjugated diene portion of the unhydrogenated copolymer also affect the tensile strength, there being a steady decrease in tensile strength as vinyl content is increased. By adjustment of degree of hydrogenation (i.e. varying mole % saturation), the percent vinyl aromatic content and the vinyl content of the conjugated diene portion, a wide variety of properties in the final material may be obtained. Fig. 1 shows that the optimum properties are specifically obtained by adjusting the variables of monomer ratios and vinyl bond content, i.e., these are result-effective variables for optimal mechanical properties for various end uses. Since Karande teaches general the same subject matter (i.e., foam cushions prepared from a blend of hydrogenated random styrene butadiene copolymer) for the same end uses as the claimed invention, absent any unexpected results, workable ranges of composition variables are deemed to be either anticipated, or obvious routine optimizations to one of ordinary skill in the art, as evidenced by Hawkins, motivated by the desire to provide the same end use requirements. Similarly, regarding 2), since the peak loss tangent and density of the foam is result effective to the cushioning properties, they are also deemed to be either anticipated, or obvious routine optimizations to one of ordinary skill in the art. As to component (B), since it is optional (encompassing 0 parts by weight), it is not a required limitation by the prior art, therefore it has not been given a patentable weight.

For claim 2, regarding polymer (B), Karande discloses that the blend comprising from 30 to 95 wt% of propylene copolymer, such as ethylene propylene copolymer (olefin polymer), for an improved impact resistance [pp. 3 and 8], i.e., a rubbery polymer.

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For claim 3, the absence of a crystallization peak to hydrogenated random styrene butadiene copolymer is deemed to be an inherent material property of the same chemistry of a random copolymer composition.

For claim 4, absence any evidence to the contrary, the Official notice “the monomer distribution along the backbone of a random copolymer inherently has a taper distribution caused by the inherent difference in the monomer reactivities, as evidenced by Karande’s description of the copolymer as “substantially random” [pp. 4-5]” has been taken as admitted prior art.

For claim 13, since Karande discloses that ethylene propylene copolymer is useful for impact improvement, workable impact resilience is deemed to be either anticipated, or an obvious routine optimization to one skilled in the art, motivated by the desire to provide required properties for the same end uses.

For claim 15, Karande discloses that the foamed articles are used for various cushions (shock absorber).

For claim 16, it is rejected for the same reason as set forth above. Further, absent a clear indication of basic and novel characteristics, the transitional phrase “consisting essentially of” is construed as equivalent to “comprising.” If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of “consisting essentially of,” applicant has the burden of showing that the introduction of additional steps or components would materially change the basic and novel characteristics of applicant’s invention. See MPEP § 2111.03.

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5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al. [WO 02/068529 A2] in view of Shibata et al. [US 5191024], and evidenced by Hawkins et al. [US 3935176].

The teachings of Karande are again relied upon as set forth above.

For claims 7 and 8, Karande is silent about using a hydrogenated styrene butadiene copolymer bonded to a modifier having an amine functional group. However, Shibata's invention relates to a modified hydrogenated diene block copolymer having excellent processability and weather resistance, impact resistance and flexibility, etc. [col. 1, ll. 5-13]. The modified block of alkenyl (vinyl) aromatic compound-conjugated diene copolymer having at least one functional group selected from the group consisting of acid anhydride group, carboxyl group, hydroxyl group, amino group [col. 2, ll. 2-26]. It would have been obvious to one of ordinary skill in the art to modify Karande with a modified hydrogenated styrene butadiene copolymer with an amino group of Shibata, motivated by the desire to obtain various improved properties.

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al. [WO 02/068529 A2], and evidenced by Hawkins et al. [US 3935176].

The teachings of Karande are again relied upon as set forth above.

For claims 11 and 12, Karande discloses that the blend may include styrenic block copolymers, such as styrene-butadiene-styrene, etc., in an amount up to 50 wt% [pp. 3 and 9]. Absence of any evidence to the contrary, the Official notice "hydrogenation of styrene-butadiene-styrene block copolymer improves the aging resistance" has been taken as admitted prior art. It would have been obvious to one skilled in the art to modify the styrene-butadiene-

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styrene block copolymer of Karande with hydrogenation, motivated by the desire to improve the durability of the foamed article.

### ***Response to Arguments***

7. Applicants argue at Remarks page 10:

“Karande '529 has no teaching or suggestion about the vinyl bond content as measured with respect to conjugated diene monomer units.”

However, it is old and well known that the monomer ratio and vinyl bond content of a hydrogenated random copolymer of a conjugated diene and vinyl aromatic compound are result effective in varying the mechanical properties of the cushion foams, as evidenced by Hawkins. It would have been obvious optimizations to one of ordinary skill in the art to determine workable ranges of these variables for the same end uses.

For the same reasons set forth above, absent any unexpected results, applicants argue at page 10 regarding the styrene monomer content is unpersuasive.

Regarding applicants' arguments at page 11 directed to Karande's EXAMPLES, the examiner notes that since these embodiments are not relied upon, nor being limiting to Karande's invention, applicants' arguments are misplaced and unpersuasive.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 7:00 am - 5:00 pm, Tuesday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/  
Primary Examiner, Art Unit 1794